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6. (New) A linear direct current motor comprising:

a center yoke extending in a longitudinal direction;

upper and lower outer yoke both of which are arranged parallel to the center yoke on opposite sides thereof;

a first permanent magnet for generating a magnetic field between the upper outer yoke and the center yoke;

a second permanent magnet for generating a magnetic field between the lower outer yoke and the center yoke;

a coil assembly movable in the longitudinal direction and having an opening through which the center yoke passes; and

wherein the coil assembly includes a flat cooling pipe having a cross section elongated in the longitudinal direction and a U-shaped fold for passing the center yoke through,

a manifold having a cooling medium inlet and a cooling medium outlet and being connected to both ends of the cooling pipe, and

a coil wound around the cooling pipe and the manifold.

7. (New) The linear direct current motor according to Claim 6, wherein the cooling pipe has a plurality of minute holes through which coolant can flow, said holes being aligned in the longitudinal direction.

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8. (New) The linear direct current motor according to Claim 6, wherein the length of the elongated cross section of the cooling pipe is larger than the length of the coil in the longitudinal direction.

9. (New) The linear direct current motor according to Claim 6, wherein the first permanent magnet is attached to at least one of the center yoke and the upper outer yoke, and wherein the second permanent magnet is attached to at least one of the center yoke and the lower outer yoke.

10. (New) The linear direct current motor according to Claim 6, further comprising side yokes by which the respective ends of the center yoke and the upper outer yoke are respectively connected.

11. (New) The linear direct current motor according to Claim 6, further comprising side yokes by which the respective ends of the center yoke and the lower outer yoke are respectively connected.

12. (New) A linear DC motor coil assembly having an opening through which a center yoke passes in a longitudinal direction, comprising:

a flat cooling pipe having a cross section elongated in the longitudinal direction and  
a U-shaped fold for passing the center yoke through;

a manifold having a cooling medium inlet and a cooling medium outlet and being

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connected to both ends of the cooling pipe; and

a coil wound around the cooling pipe and the manifold.

13. (New) The linear DC motor coil assembly according to Claim 12, further comprising a pair of parallel flat plates having respective first openings through which the center yoke passes and respective second openings into which the manifold fitted, and wherein the cooling pipe and the coils are provided between the pair of parallel flat plates.

14. (New) The linear direct current motor according to Claim 12, wherein the cooling pipe has a plurality of minute holes through which coolant can flow, said holes being aligned in the longitudinal direction.

15. (New) The linear direct current motor according to Claim 12, wherein the length of the elongated cross section of the cooling pipe is larger than the length of the coil in the longitudinal direction.

16. (New) A method of manufacturing a linear DC motor coil assembly having an opening through which a center yoke passes in a longitudinal direction, comprising the steps of:

bending a flat cooling pipe into a U-shaped fold for passing the center yoke through;  
connecting both ends of the flat cooling pipe to a manifold to form a frame; and  
winding a coil around the flat cooling pipe and the manifold.

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17. (New) The method of manufacturing a linear DC motor coil assembly according to Claim 16, further comprising the steps of:

inserting a core in the form of a rectangular block into the U-shaped fold;

fitting one ends of the manifold and the core into openings of an upper flat plate,  
respectively;

fitting the other ends of the manifold and the core into openings of a lower flat plate,  
respectively;

attaching the upper and lower flat plates to a rectangular mold for covering the flat  
cooling pipe, the manifold, the coil and the core;

injecting resin into a gap surrounded by the upper and lower flat plates and the mold;

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removing the core and the mold.--

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